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**Title :** Position, breadth and trophic overlap of California sea lion *Zalophus californianus californianus* (LESSON, 1828) colonies of the Gulf of California, Mexico based on  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$ .

**Category :** Ecology

**Student :** M.A./M.S.

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**Abstract :** California sea lion (*Zalophus californianus californianus*) females show a strong philopatry and particular feeding habits in the colonies of the Gulf of California. This evidence suggests the hypothesis of the utilization of local resources in spite of the fact that between some of the colonies there is a smaller distance (7 miles) than the forage capacity of the species (15 miles). The objective of this study is to measure the position and trophic breadth of different California sea lion colonies in order to determine the trophic overlap. Stable nitrogen ( $\delta^{15}\text{N}$ ) and carbon ( $\delta^{13}\text{C}$ ) isotope ratios were measured in hair of sea lion pups as an indirect measurement of these isotopes' presence in the females. Samples were taken from 7 reproductive colonies of the Gulf of California during the breeding season of 2000 ( $n = 70$ ) and 11 colonies in 2002 ( $n = 108$ ). The values of  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$  in 2002 showed a significant difference (ANOVA,  $P < 0.05$ ) in the trophic positions of several colonies. Two groups emerged with similar  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$  values: the first one includes Los Islotes, Isla Lobos, Cantiles and Granito and the second includes San Esteban, El Partido, San Pedro Mártir and El Rasito. Los Islotes and El Rasito are the colonies with extreme  $\delta^{15}\text{N}$  values (20.18 and 21.75 respectively) and Los Islotes and El Partido for  $\delta^{13}\text{C}$  values ( $-15.44$  and  $-13.96$  respectively). A comparison between 2000 and 2002 yielded a similar pattern and values of  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$  for all the colonies except for Los Islotes which increased its  $\delta^{15}\text{N}$  value in 2002. A complementary analysis of fecal samples realized in each colony in 2002 determined the identity of preys and related them to the  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$  values obtained. These results support the hypothesis of resource partition.